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"WHAT KIND OF WORLD DO WE LIVE IN?"

NOTES FOR REMARKS

BY

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to the

NATIONAL DEFENCE COLLEGE

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August 28, 1990 - the 240th day of 1990, but, more important to each of you, day 2 of NDC Course XLIV. 26 days since Iraqi forces swept into Kuwait and the Security Council acted under Article 39; 22 days since it declared - for only the third time ever, economic sanctions under Article 41; 3 days since Article 42 was invoked - only the second time with the full participation of the five Permanent Members. Within Canada, 24 weeks since armed, masked Mohawks began defying Canadian law and attracting the attention - as well as much support - of the Canadian public to their longstanding grievances. Less than 3 months since elections - sometimes calm, sometimes not - in a spate of countries, not all used to democratic practices: Bulgaria and Czechoslovakia, Colombia and Peru, Burma and the Dominican Republic. 36 days until the unification of Germany. Not quite 3 months until the concluding session of the Uruguay Round of the GATT; not quite 4 months since the Bergen Conference affirmed the dangers of global warming.

Exactly one year ago, Course XLIII first gathered in these buildings without the slightest expectation on the part of members or directing staff that they would observe together the conclusion of half a century of conflict (both real and anticipated) and witness the world's unpreparedness for the new age of interdependence. Not the end of history, but hopefully the beginning of the end of illusion, of ideology, of ignorance. You now gather wondering whether in days and weeks to come the latest manifestation of international outlawry will be contained successfully, whether in the process nations will record an unprecedented and significant accomplishment in community building and support for the rule of law.

Not often, in all recorded time have there been such hinges, such diversions, such rendezvous. Not always has humankind wisely made the transition.

1990 is not yet the beginning of the end of a century. It is, however, an opportunity to end an era - one that began with the Russo-Japanese war of 1904-05. An era which will be regarded as long as historic records are kept as the bloodiest, most destructive, most self-seeking ever. If the next era is to be more humane, more environmentally sustainable, more just, some basic balances must be understood, and must be observed.

We live in an increasingly crowded, environmentally degraded planet, where margins of error become ever narrower, where the only space with a growth margin is intellectual space. We are mesmerized by measurements, almost always quantitative; almost never qualitative.

A complicating factor in our quest for adjustment is that the span of human attention has never been long. Now, it is increasingly shaped by television units: one hour programs, one week intervals. And, as scientists develop the means increasingly to measure accurately faster speeds and shorter time periods, our interest is captured by precise, almost momentary imagery: micro-seconds, millimetres. In democratic regimes, where electoral periods range from two to six years, both politicians and businessmen find it inconvenient to think, plan, or act in longer segments. Fiscal years and electoral mandates become, of necesity, the maximum fraction of time for analysis and reflection. Events of longer duration are ruled out. Yet they are meaningful nevertheless. Rare is the kind of opportunity that has been presented to you for these next 10 months to observe, to challenge, to consider. Far rarer still does that opportunity come at a moment when so many a priori assumptions have dissolved, when so many new structures and processes wait to be designed.

The history of humankind is the proud record of many brilliant accomplishments: the arithmetic concept of zero; Mozart's piano concertos; the courageous voyages of exploration of Cabot and Frobisher, of Cartier and Champlain; the discovery of insulin by Banting and Best; the political symmetry of the United States Constitution; the stunning force of a novel of Gabriel Garcia Marquez. That same history is as well the bleak account of stupidity and savagery, of hypocrisy and chicanery. Barbarity has never

lacked its proponents, acting always for the greater glory of something - God, sovereignty, ideology, markets. Examples abound: the Children's Crusade, the Inquisition, the slave-trade, Hitlerism, Stalinism.

Arrogance and ignorance, daring and resolve; these have been ingredients of humankind's quest for permanence. They have led to technological achievements beyond the imagination of any prophets, and standards of living in the industrialized nations more comfortable than any in history. They have also destroyed the tropical rain forests, advanced alarmingly the African deserts, and engineered a nuclear Damocles' sword that places in jeopardy still the very continuance of humankind.

Few of these accomplishments - be they positive or negative - are measurable as constants on a monthly or even annual scale. How, even, does one measure the comparable cost-benefit ratio of a growth economy and a polluted environment, of a functioning deterrent to war and the threat of a nuclear holocaust, of protected northern industries and growing Third-World anguish? Are we able even to discern major trends in time to modify them? Can the world develop the equivalent of time-lapse photography to permit decision-makers to observe the long-term effects of seemingly anodyne activities and actions? How can we project into the future the effects of activities not yet undertaken?

Brock Chisholm, the Canadian who was the first Director-General of the World Health Organization, argued that the ability to see ahead, and to plan accordingly, was an ingredient of maturity. Infants, he said, may anticipate their next meal, but no more. Pre-schoolers can look forward to special events like birthdays or Christmas. Adolescents are already planning their life-work, and mature adults take steps to contribute to a preferred future for their own offspring.

It is the transfer of this forward view from the individual to the community as a whole that is now needed. But how to attract attention in the first instance?

There's not much excitement in measuring the degradation of prairie soils, or in computing the epidemiology of infant mortality in South Asia. And particularly not for politicians, because the variation in any four-year period is minor. Who, then, is to speak for the future, for Brock Chisholm's great-grandchildren? In the past century, those prairie soils have lost fully one-half of their nutrient content. Who was responsible? Do we have any sort of mechanism to ensure that that rate of deterioration is not continuing?

Looking forward for a period of one or two decades is understandably difficult for governments accountable at the end of four- or five-year periods. Nevertheless, we must never forget that the greatest of statesmen kept their eyes firmly on distant horizons. Churchill and Roosevelt, in the depths of World War II, looked ahead. In August 1941, aboard HMS Prince of Wales anchored in Placentia Bay, Newfoundland, they issued the Atlantic Charter which called for post-war political and economic objectives which, at San Francisco in 1945, were melded into the United Nations Charter: renunciation of force, political self-determination, economic collaboration, a system of general security, disarmament. Not all of it yet realized, yet boldly planned nevertheless. So well planned in fact that Chapter VII, now suddenly rediscovered by the USA and the USSR, may prove to be as adequate as international lawyers have argued all along. For the first time since February 16, 1946, the Security Council may turn to the Military Staff Committee.

The summer of 1945 that gave birth to the United Nations was the beginning of the nuclear age, a step by humankind into an era which it did not understand then and scarcely comprehends now. An era qualitatively so distinct from the past that one understands the confusion and the contradictions that have permeated military planning, and which leave the world now quite unprepared for what is happening and will happen.

Contradictions in today's world are not just nuclear. Our unwillingness, perhaps our inability, to utilize our resources for the benefit

of human beings has placed us in a world of extraordinary discrepancies between luxury and depravity. A world of unimaginable suffering which has produced at this moment as many as 60 million refugees of one sort or another worldwide; life expectancies of less than 45 years as in Sierra Leone or Guinea (43 and 44 respectively); infant mortality rates in excess of 150 per 1,000 in Mali (159) or Afghanistan (162), compared with 5 in Finland or 6 in Canada; per capita GNP of US$150 per year as in Bhutan and Zaire, compared with US$21.3 thousand in Switzerland or US$18.5 thousand in the United States. A world of tumult and unrest, one which promises much but betrays often. A period which has been compared to the 13th century when chivalry flowered even as the Inquisition was introduced as a barbaric instrument of legal process. That century included Magna Carta, the Cologne Cathedral, and Genghis Khan. There are major differences, however, between then and now. Armies in the 13th century were equipped with swords, not nuclear or chemical weapons; terrorists in the Middle Ages had access neither to plastic explosives nor to large airplanes in which to detonate them; this planet 700 years ago faced no immediate challenge to its carrying capacity or to its wholesomeness; that world was a world of immediacies - of local economies and largely local awareness - no TV, no FAX, no satellites, no computers.

You begin this week a period of exploration, study and reflection in circumstances as well designed and as potentially challenging as any that can be conceived. I envy you the opportunity.

Where should one begin when looking at this confusing, still very-dangerous world? I invite you to view it with me from four different perspectives:

I - The Physical Environment,
II - The Human Environment,
III - The Economic Environment, and
IV - The Military Environment.

If any of you are still in the room at the end of all that, I'll attempt some conclusions.

ITEM - THE PHYSICAL ENVIRONMENT

It is no surprise, I hope, to anyone in this room to be told that the human race has been living off its capital for millennia. The extent to which we are diminishing that base came sharply into focus in 1987. We learned, for example, that the earth's ozone layer had decreased by 5% in only 7 years ('79 to '86). We have learned since that emissions of greenhouse gases have reached alarming proportions. An estimated 6 to 9 billion tonnes of carbon are released annually into the atmosphere, overwhelmingly from the 20% of the population who live in the industrialized countries.

One of the globe's most precious and most vital commodities is soil. It is disappearing at a frightening rate, making a mockery of the phrase "dirt cheap". Several forces are at work leading to this result. One is drought - most evident in the Sahel region of Africa and, more recently, in vast tracts of South-West Africa. Another is the unceasing demand for firewood in developing countries which depletes forests and encourages soil erosion. These two phenomena together contribute to desertification. A third negative force takes the form of improper farming practices, this as much in the industrialized countries as in the South. A fourth, again evident in both North and South, is urban sprawl. Worldwide, the Brundtland Commission found, arable land is declining by 6 million hectares per year - equivalent to four Jamaicas.

Let me endeavour to transform those statistics into more recognizable form. Canada occupies the second largest land mass of any country in the world and is one of the world's major agricultural producers. Yet the Canada Land Inventory reveals that only 11% of Canadian land is capable of any form of agriculture, less than 5% capable of producing crops, and less than one half of 1% categorized as Class One land with no agricultural limitations. How big is 0.5%? About the size of Denmark. Environment Canada's Dr. E.W. Manning has calculated that on a clear day, a person standing on the CN Tower in Toronto is able to see with the

naked eye 37% of Canada's Class One agricultural land.

Soil degradation and new soil formation alike are both slow-moving events, difficult to measure. How does one make these processes subject to measurement? How does one persuade often-illiterate populations in developing countries, and equally-often uninterested populations in the industrialized countries, that the future of all of us is at peril, the quality of life of all planetary inhabitants deteriorating, even though at a tortoise-like pace?

How does one commit a populace to the steps that must be taken now to avoid irremedial damage? A special report of the Canadian Senate's Standing Committee on Agriculture, Fisheries and Forestry stated in 1984, referring to soil deterioration, "Canada is facing the most serious agricultural crisis in its history and unless action is taken quickly, this country will lose a major portion of its agricultural capability." In 1990, 6 years later, that report remains outstanding.

Closely associated with rich soils in a healthy organic and synergistic complex are forests and fresh water. Their continued health cannot be presumed. The Brandt Commission in 1979 was one of the first to draw attention to the massive amounts of forest loss. It estimated that forest cover had decreased from 25% to 20% of the earth's surface over the previous 20 years. Every year throughout the Third World an area of forest is destroyed equal to one half of the United Kingdom, or equal to the size of Washington State. These losses - some 16 to 20 million hectares a year according to the best available estimates, are now realized to be nearly 50% higher than was thought only 10 years ago. The speed of forest depletion is staggering. Thailand lost one-fourth of its forest cover in a 10-year period; Costa Rica lost one-third in 10 years; Ivory Coast lost one-third in 8 years.

Forest depletion takes place as a result of several activities: poorly managed industrial logging; conversion to agricultural use, often by primitive, shifting slash-and-burn techniques; fuelwood gathering; over-grazing. It is estimated that close to one billion cubic metres of wood are harvested for fuel each year in the tropical zone. This rate will increase in lock-step with population increases because there is no economically advantageous fuel in sight for the foreseeable future. The Brundtland Commission estimated that in the tropical areas today 10 trees are cut down for every one that is planted. In Africa, that ratio is 29 to 1.

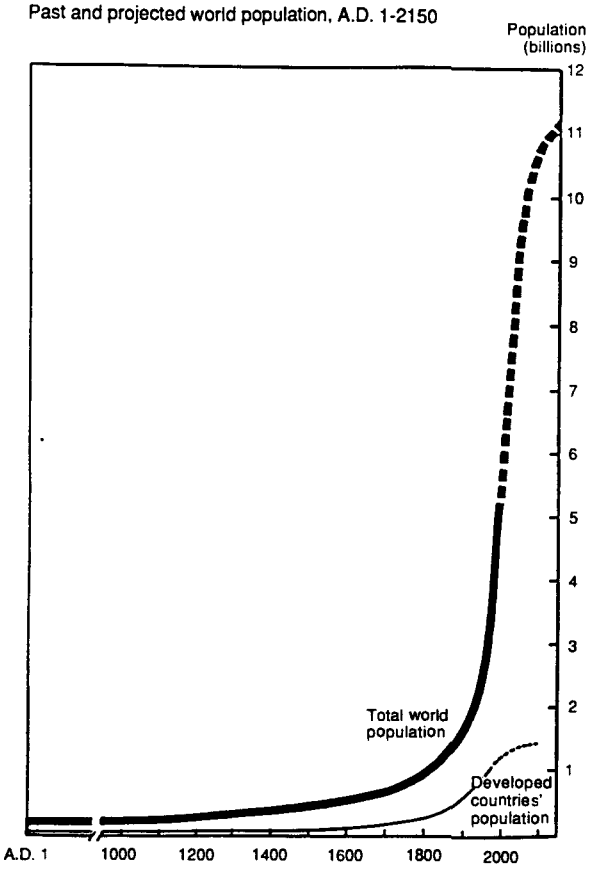
Fresh water is critical both to agricultural productivity and to forest growth. Natural phenomena such as drought or flood have for millennia led to tragic consequences. Drought is a primary cause of desertification in the Sahelian region. In Sudan, the desert has extended by a 90- to 100-kilometre belt across the entire country in just 15 years according to UNEP, the UN Environment Programme. Over the past 50 years the Sahara has swallowed 650,000 square kilometres of former grazing lands, an area the size of Manitoba. In 7 years, the water level in Lake Nasser, behind the Nile River dam at Aswan, dropped 60 feet.

In a preliminary report on Canadian water resources made available in late 1986, the Science Council of Canada stated: "Evidence of a looming environmental crisis indicates a scale and depth of disaster far exceeding any met by earlier generations." It argues that "The availability of water will be recognized as the key determinant of economic and environmental health; its absence a pressing threat to national security and well-being." The report catalogues the water shortage now faced in various parts of Canada. And it forecasts, on a global basis, that by the year 2000, 3 billion people (one half of the then world's population) will have inadequate supplies of water in terms either of quality or quantity.

In this country of widely varying seasonal temperatures, it is well to remember that the difference in average temperatures between the worst ice age of the past 100,000 years and today is only 5 to 8 degrees Celcius. The range of warming now considered as possible by reputable scientists beginning to examine these phenomena is from 1.5 to 4.5 degrees Celcius in the next 30 to 50 years.

The margin of tolerance of our atmosphere is very narrow. How welcome, therefore, was the decision of the United States Government in late June to reverse its earlier stand refusing to join Canada and European countries in offering financial assistance to developing countries as they pursue non-CFC policies.

Past and projected world population, A.D. 1-2150



Sources: Durand, 1977, UN, 1966

Figure 1

ITEM - THE HUMAN ENVIRONMENT

This item in my catalogue of indicators of the state of the world not only concerns people, it is people: a lot of people. On July 11, 1987 the world's population passed the 5 billion mark. In the 3 years since then, a net growth of another 300 million has taken place. Nor is the rate of growth slowing. UNFPA projects the world population in the year 2000 to be 6.251 million; in 2025, to be 8.467 million - 260 million more than earlier predictions.

In August 1984, in Mexico City, the World Population Conference convened its second decennial meeting. That event precipitated a number of studies and analyses of a current and a projected nature. These are now proving to be on the low side. Not for the first time.

From pre-history until about 1000 AD, the world's population did not increase by much. In earliest times, life was so precarious, and food supplies so unreliable, that a rough balance obtained between births and deaths notwithstanding an undoubtedly high fertility rate. The introduction of agricultural practices about 8000 BC lent a greater certainty to food supply but was for a long time largely offset by recurring crises of other natures - plague, war, etc. As the figure shows, population growth was modest for many centuries - from about 300 million at the time of the birth of Christ to some 800 million in the mid-18th century. The doubling period was about 1,500 years. An equally important phenomenon is the fact that the rate of growth was approximately the same in all regions of the world.

From about 1850 onwards, growth accelerated immensely. Mortality decreased with the advent of science and technology. The next doubling period was reduced by 90%, the world required only 150 years to grow from 800 million to 1.7 billion in 1900. That acceleration has continued. By 1950, the figure had reached 2.5 billion; by 1987, 5 billion. Doubling, that once had taken 1,500 years, had now been accomplished in 37.

Growth figures of this magnitude are difficult to digest. They work out to an annual increment of a little more than 100 million persons. One hundred million is about the population of Bangladesh. From now to the turn of the century, then, the world's population will grow by the equivalent of one new Bangladesh every year.

Since 1950, another important distinction has become apparent. The longstanding, roughly parallel, growth rates between industrialized and developing countries ceased. From 1750 to 1850 the two groups were not that far apart: 0.6% annual growth rate for the nations of Europe, North America and Japan, 0.4% for Africa, Asia, and Latin America. Each group eased upwards in the next century from 1850 to 1950; 0.9% and 0.6% respectively. From 1950 onwards, the change has been startling. Between 1950 and 1970, the growth rates increased and reversed. Accepted projections distribute the population for the year 2000 - 6.25 billion - as 4.95 billion for the developing countries, 1.3 billion for the industrialized countries.

As the developing countries share of world population grew, their share of production dropped: from 44% in 1800 to 19% a century later and to 17% in 1950. In 1980, the production share had risen to 21%, but the population share was 75%.

Another comparison between North and South is equally salient. The current size of those developing countries now at the threshold of industrialization and in the infancy of self-government is immensely larger than was the case for the northern countries at a comparative moment in their history. India is now 853 million, Indonesia - 181 million, Nigeria - 113 million, Mexico - 89 million. In 1800, by comparison, France was about 30 million, Britain 10 million. In 1850, the United States was about 24 million, Japan 30 million.

The challenges to contemporary developing country governments are thus incomparably greater than were those to the now industrialized countries at an equivalent time in their history. Not only are populations several-fold larger but instant communications reveal to the poor the contrast of living standards with the better off. In all countries, North and South, governmentally imposed curtailments of freedom have followed on population growth; zoning laws, emission standards, and water and land use restrictions are among those well known to everyone in this room. Authoritarian measures in countries with populations much greater than Canada's are not, therefore, entirely without precedent. Nor should we be surprised if they increase, as they will, even in the democracies. The challenge to democracies everywhere is to ensure that those restraints be chosen wisely and administered justly. It is a formidable challenge.

The carrying capacity of the Planet Earth is not of infinite proportions. The earth's ability to provide food will be a critical control factor if population increases are not restrained in other ways.

The International Food Policy Research Institute released a significant study in 1986 which projected a year 2000 scenario based upon trade, production, and consumption statistics in 105 developing countries relating to the basic food staples: cereals, roots and tubers, pulses, groundnuts, plantains and bananas. The IFPRI report projects a turn of the century annual Third World production shortfall in basic food staples of 70 million metric tonnes. This shortfall will have to be made up of imports from the industrialized countries. By way of comparison, Canada's total exports of food and food products in 1987 was some 30 million metric tonnes.

Population pressures and imbalances create shock waves which travel far from the point of origin. Byzantium realized that 6-1/2 centuries ago as Ottoman bands swept out of the Asian steppes, capturing Galipoli on the European side of the Hellespont in 1353. On July 12, 1987 ripples of shock waves rolled up on the southern coast of Nova Scotia as much more peaceful strangers appeared on the streets of Charlesville, N.S. Today, worldwide, the number of "environmental refugees", those fleeing natural circumstances, is estimated to be 10 million and growing. An immediate destination is often the nearest city.

In 1960, there were three cities in Africa with populations of more than 500,000. Today there are 28. Worldwide, mega-cities are overwhelmingly in the South. Of the 25 cities in the world with a current population of more than 7 million, 16 are in developing countries, including the largest, Mexico City, at 18.1 million. By 2000, Mexico City is projected to grow to 26.3 million - the population of all Canada - and 45 of the 60 largest cities will be in the South, 18 of them larger than 10 million.

Faced with numbers of this magnitude, the provision of basic services on an equitable basis becomes absolutely impossible. Squalor and depravity increase. Political instability grows. And the future is placed in jeopardy. By 2000, 51.2% of the world's population will be urban. And that population will be young. Half of all people alive at the turn of the century will be under the age of 25. In the developing countries, 35% of the total population will be under 14. In ever-increasing numbers these youths find themselves on the streets: abandoned, uneducated, unemployed, alienated from any societal norms, without any loyalties except to their own gang, and - increasingly - with easy access to rapid-firing weapons.

The Independent Commission on International Humanitarian Issues reported: "The fate of the street generation is inseparable from the uncertain fate of cities. Bursting or decaying, they were never built with the needs of children in mind. Today, the notion of man as the measure of all things has long vanished from urban life, and huge urban agglomerations have become increasingly inhuman and unmanageable." One hundred years after Dickens, the phenomenon of street children has returned in numbers far in excess of anything known to Oliver Twist.

The reaction of young persons facing a future without hope is predictable. Which is not to say that governments are wise predictors. Current events in Gaza and the occupied territories of the West Bank provide ample evidence.

ITEM - THE ECONOMIC ENVIRONMENT

A decade ago, most references to economic issues still utilized a national - or, at most, regional - perspective: the Canadian economy, the Japanese economy, the European economy.

During the 1980s, awareness deepened of the "world economy." The World Bank, in its 1986 World Development Report, stated that "the world economy is in an uneasy and unsettled state." Paul Volcker, near the conclusion of his term as Chairman of the United States Federal Reserve Board, testified that the world economy suffered from a "massive international disequilibrium." Peter Drucker, the highly respected management consultant, wrote in "Foreign Affairs" in 1987: "From now on any country - but also any business, especially a large one - that wants to prosper will have to accept that it is the world economy that leads and that domestic economic policies will succeed only if they strengthen, or at least do not impair, the country's international competitive position." The same opinion had earlier been stated by Robert Hormats, a New York investment banker, who wrote in 1986 that "More than at any time in this century, US economic well-being depends on conditions abroad."

But are national political leaders paying attention? UNCTAD's 1986 Annual Report stated: "In the 1980s, countries' policies, on the whole, have been framed without regard to their international consequences."

Long-held conventional views, often among central bankers, are slow to disappear. The cherished belief that the major economic powers are able to act with impunity independently of one another did not begin to give way substantially until the late 1970swith the birth of the annual Western Economic Summits and the structure they fashioned for the broad coordination of economic policies. This group was much more tightly knit, for example, than the OECD. Still more was needed, however, to persuade decision-makers and publics of the mutual vulnerability of national economies. The collapse of oil prices, the sudden impact of debt burdens, and the financial crises of a number of

developing countries brought the message home. The economic health of the Big Seven was seen to be very much a factor of economic performance in far-away places. The inability of the developing countries, particularly in Latin America, to maintain their imports from the United States resulted in the loss, directly and indirectly, of more than one and a third million US jobs in the period 1980-84, according to the US Overseas Development Council. US sales to Latin America dropped 26% between 1981 and 1986 -- Latin America could not afford to buy goods because it was servicing its debt. Since 1983, the Latin American debtor countries have paid out US$191 billion in interest.

In a 7-year period of the past decade, stagnant and diminishing economies in the developing countries reduced Canadian export revenues by CAD$24 billion, with a loss of 130,000 Canadian jobs.

Interconnectedness and interdependence have suddenly become acceptable terms. Assumption of economic responsibility, however, remains an elusive goal, one repugnant to the short-term political interests, or abilities, of all too many governments. In these circumstances, measurements take on different meanings.

It took a period of only 3 years for the United States to change from the world's largest creditor to the world's largest debtor. As America's federal deficit soared, spurred by huge military expenditures, interest rates climbed and investment capital flooded in. Coincidentally, those same interest rates kept up the value of the US dollar in international markets and acted indirectly as an immense stimulus to foreign manufacturers. The US merchandise trade deficit sank to record numbers, leading to huge losses in sales and drops in employment, and is now a major irritant in American relations with several countries, principally Japan and India. In one of the great ironies of this period, one unthought of only 10 years earlier, India has now been selected as the country whose trade policies are most offensive to the US, and has been singled out for "super 301" retaliation.

Meanwhile, the outstanding debt of the developing countries has soared, exceeding 1.2 trillion US$ in 1989. Of even more critical importance, the debt service ratio climbed from 16.1% to 21.9% between 1980 and 1985. In the aggregate, this eased to 17% by 1989. Aggregate figures are of little solace to individual governments, however. In Africa, the ratio climbed from 17.7% in 1981 to 31.1% in 1990; in the same period, the fuel-exporting nations went from 11.4% to 24.6%, and the 15 most heavily indebted countries remain as they were earlier at approximately 40%. Of every $10 earned in foreign exchange, $4 is earmarked for interest payments. The most welcome Baker initiative, which marked a major reversal of US foreign economic policies, was abandoned in favour of the Brady Plan, which itself is desperately slow in gaining support and implementation. Progress has been reached so far in only three cases: Mexico, Costa Rica, and the Philippines.

One of the structural factors responsible for the immense trade and fiscal imbalances is the continuing deficit positions of a number of industrialized countries. Gross US federal debt passed through the US$1 trillion threshold for the first time in history in 1981. In the next 5 years, it more than doubled, to more than US$2,112 billion. Budget deficits as a percentage of GNP have shown a disturbing tendency to increase in 5 of the 7 summit countries in this decade. In only Japan and the Federal Republic of Germany are they lower than in 1979. While the largest deficit is, of course, in the United States, far and away the largest in percentage terms is that of Italy at 10.6% in 1988. Canada that year was 2.6%. The United States was 2.1%.

A major challenge to governments is the fact that capital markets have become global, linked by sophisticated computer and satellite-communication networks. As the earth rotates, traders in Tokyo, Singapore, Frankfurt, London, New York, Toronto, and San Francisco buy and sell all forms of financial paper: equities, debentures, currencies themselves. The market is fuelled by immense pools of institutional savings. Private pension funds in the OECD countries

now exceed US$1.4 billion and will double in the next 5 years. In any 24-hour period, the volume of trade in the world's currency markets alone is some US$430 billion. Of that total, less than 10% is related to conventional activities, i.e., buying or producing something. The balance of more than 90% - some US$390 billion - is speculative activity.

One observer has commented: "At its worst, this new global financial order is accountable to no one. Sharp-eyed young technicians handle billions of dollars of money each day, often without really knowing to whom that money belongs. They are intensely profit-oriented and arbitrary, and the money they control can be subject to wild flights or harrowing crashes based on rumours and hunches." The 1984 failure of the Continental Illinois Bank - which led to the then largest single government bail-out of a private sector enterprise in history (US$4.5 billion) - began with a rumour on the commercial paper market in Tokyo. The rumour was unfounded but, by the time the bank opened for business in Chicago hours later, its deposit base was a shambles. In 1988, the Brady Commission on US market mechanisms included a recommendation for "circuit breakers" to intervene as wild fluctuations pick up momentum from one stock exchange to another.

Unregulated, massive transfers of capital (not all of it derived from legitimate activities), roller-coaster commodity pricing induced in some instances by government subsidy policies, and trade barriers of a number of kinds have combined to produce the current incidence of massive, unsustainable, imbalances. They cannot be eased without widespread international cooperation. The importance of well-performing economies in the developing countries must not be overlooked in this scheme. Through much of the decade of the 1980s, Canada sold more to the LDCs than it did to either Japan or all the members of the European Economic Community. United States sales to the developing countries are estimated now to support two million American jobs. Yet developing countries cannot indefinitely buy goods and pay interest and license fees unless their own export position improves. In the face of protectionism and low commodity prices, that's not a likely event.

In gross financial transfers, the net balance is not from North to South as the popular impression has it. In 1989, the net flow was the reverse - in the sum of US$50 billion (up 10 billion from the previous year). That means that the impoverished countries of the world are enriching the wealthy countries at the rate of some one billion dollars each week.

If economic interdependence was a fuzzy term to any of you prior to this morning, that figure may sharpen the image somewhat - even reverse your conceptions of who depends on whom.

ITEM - THE MILITARY ENVIRONMENT

The environment with the least accurate title in this state-of-the-world catalogue features weapons and weaponry. Ironically, this topic could qualify for consideration under the economics section. This for two reasons. First, an increasing number of experts concedes that there exists no military purpose for nuclear weapons of any kind; that their role is political, including deterrence. Cost thus assumes a new importance. One of the great ironies of this century, one not unknown in previous times, is that current disarmament activities are the consequence more of economic, than military or political circumstance. Second, notwithstanding recent downward trends, the economic value of the defence industry and of international trade in weapons and weapons-systems is so large that it reduces to comparative unimportance many other sectoral activities. The Palme Commission stated that total military spending in 1982, worldwide, exceeded US$650 billion. That's more than US$1 million a minute. A joint British and American study published in 1987 indicated that military expenditures had by then reached US$1.7 million a minute.

A lucrative portion of the international arms trade is from North to South. Modern, automatic-firing, small-calibre weapons are now so plentiful and so universally distributed that they have become a routine tool of trade for terrorists and common criminals alike: Uzis, Kalishnikovs, M-16s all abound. In Colombia, private killers flourish as a growth industry: the contract price can be as low as US$100. The value of arms transferred in commercial or official inter-govemmental trade, all of it in conventional armaments, in the period 1980-84 was US$69.7 billion, with the United States continuing its long-held lead as the world's major arms exporter (39.7% of the total in that period, compared to 31.8% for the USSR and 9.1% for France). Sales dropped dramatically in 1985, by $5.5 billion, and the order of the major vendors changed. USSR - first, UK - second, USA - third. The value of the thriving underground trade in arms is impossible to calculate with any accuracy. The Third World's share of reported global military expenditures (which includes, of course, more than arms purchases) rose from 3% in 1955 to 20% in 1982 according to SIPRI, but has since fallen off somewhat. As developing countries have begun their own armaments industries, their capacity to meet their needs domestically has reduced their offshore purchases.

The defence industry in the United States is now so large and so geographically widespread that it is a critically important and structural segment of the US economy. A major cut-back in defence expenditures would have severe disruptive effects on the economy and contribute significantly to a rise in unemployment. For that reason, led by Long Island politicians, the Congress last year forced the US Navy to buy more F-14s than it wanted. The current lively debate about "peace dividends" is much more reflective of economic circumstance than it is of physical security.

The same general circumstances obtain in France, Israel, The Republic of South Africa, and to a lesser extent in a number of other industrialized countries. Israel, for example, manufactures a good deal of its own weapons requirements. It engages as well in a flourishing export trade. So much so that a mid-1980s Israeli study called this a crucial factor in the country's economy. The value of Israeli arms exports was then more than US$1 billion a year, representing nearly 20% of all Israeli manufactured exports, and some 10% of all exports, according to a study by the Jaffee Centre for Strategic Studies at Tel Aviv University.

The impact of government defence expenditures in Canada is much more of an economic and political issue than it is military. The CF-18 maintenance contract is a case in point.

Into the developing world from a number of northern sources are sold sophisticated weapons and weapons systems which are not needed, which cannot be maintained, and which cannot be used effectively. These are sold willingly and purchased eagerly, often on attractive credit terms and - in the case of the United States and the Soviet Union - often as part of aid programs. Statistics provided by the United States' Department of Defence

reveal that in the decade 1971 to 1980, US weapons were sold and transferred to 130 different nations. One of the results is the current impasse in the Persian Gulf. Iran was turned into a formidable regional military power by the United States. Iraq was next in line but the lead was taken by the USSR with the strong supporting role of France. It is now Saudi Arabia's turn to be armed to the teeth with modern weaponry.

In the East-West dimension, a major focus of attention remains, and properly, on nuclear issues. Even before the remarkable changes in Eastern Europe in recent months, technological advances had already placed in grave doubt the viability of the current NATO strategy of flexible response.

The INF treaty recognized that second-strike capability in both intermediate and strategic terms had become imperilled because technology is now providing to warheads guidance systems so accurate, and delivery vehicles with flight times so short, that counter-force targeting strategies threaten the survivability of land-based missiles. This is a critical change because ICBMs remain a major element in the United States strategic triad and the preponderant portion of the Soviet Union's strategic arsenal. The accuracy of the new Trident 11 D-5 SLBM (with a CEP - circular error probable - rating of well under 200 metres, less than half the CEP of the current Trident IC-4 SLBM) places in jeopardy Soviet ICBM silos and could, under cold war scenarios, force the USSR to move from a second-strike to a first-strike posture: a chilling prospect. NATO, of course, based on the imbalance of conventional forces, has always retained a first-use option. That option was expressly confirmed at Kananaskis in May of this year as an adjunct to the debate on modernization of theatre weapons, but started to dissolve at the CSCE discussions in Copenhagen in June. As Eastern European countries abandon their authoritarian regimes and seek the early withdrawal of Soviet troops, as CFE discussions proceed, as a START treaty holds to schedule, and as chemical weapons and verification agreements are concluded, the challenge to leaders and advisers to act imaginatively but prudently is breathtaking.

Strategic weapons which cannot survive a first strike are of no value. Weapons which are high-value targets and which are not survivable are of a bilateral negative worth for they are, by definition, destabilizing. Destabilizing weapons reduce, not enhance, security. This, fortunately, has now sunk into the realization of all but the most ideologically hardened in each superpower, and as a result START should be signed later this year.

As strategic inventories diminish, intermediate and chemical weapons disappear, conventional force reductions begin, and the thorny issue of ALCMs and SLCMs is addressed, the problem which I have always regarded as the most urgent - theatre nuclear weapons - continues to resist resolution, although the LANCE retirement decision is a welcome one. Lacking any credible military-use scenario, opposed vehemently by successive German governments, and packaged in such compact, easily transportable fashion as to fascinate and attract terrorists and bootleggers alike, tactical weapons in most deployments have long placed in issue a series of diabolical problems:

1.The command and control capabilities of forces armed and trained to employ conventional or nuclear weapons interchangeably.

2.The pre-siting close to the central European frontiers of nuclear mines which retain advantage only if detonated in the earliest minutes following any penetration by hostile forces. This is the "use them or lose them" syndrome.

3. The timely ability to detect and adequately respond to incoming, accurately guided warheads with flight times of 10 to 12 minutes.

4. The severability of theatre nuclear usage from strategic retaliation. This is the result of announced Soviet doctrine to retaliate against any use of nuclear weaponry in Europe by a strategic strike against European and North American targets. Thus are welded together in reality the previously compartmentalized theories of "first use" and "second strike".

Difficult as it would have been for any of us only a year ago even to anticipate, strategic nuclear weapons issues are becoming increasingly irrelevant in the US-USSR relationship and thus increasingly less contentious. This means that UK and French inventories will attract increasing attention.

A massive exchange employing a large percentage of the currently available firepower has, of course, always been beyond any rational contemplation nor has any scenario included such. Figure 2 conveys some sense of the reason why. The single dot in the centre square represents all the firepower expended in World War II, a grand total of 3 megatons. The other dots in their entirety represent the world's nuclear arsenal as of mid-1986. The changes since have yet to decrease significantly the numbers. As of November 30, 1989, the United States possessed 1,899 launchers carrying 12,570 warheads; the USSR numbers were 2,488 launchers with 10,988 warheads. (Numbers are based on the counting rules established at the December, 1987, US-USSR Summit in Washington.) That arsenal is the equivalent of 6,000 World War IIs - 18,000 megatons. The top left circle of three dots - 9 megatons, or 3 World War IIs - represents the weapons deployed on one US Poseidon submarine. The circle in the lower left hand corner represents 24 megatons, the firepower of a single US Trident I submarine. That firepower increases significantly with the introduction, now beginning, of the much more powerful Trident 11 D-5 missiles. Any two squares on the chart contain 300 megatons - enough destructive capacity to destroy every large and medium size city in the entire world.

Part of the drama associated with the signing of the INF treaty by presidents Gorbachev and Reagan flows from the fact that prior thereto no new multilateral arms-control treaty had come into effect since 1981 (the Inhumane Weapons convention) and with a single, regional exception (South Pacific), no multilateral nuclear weapon convention had been concluded since the Sea-Bed Treaty in

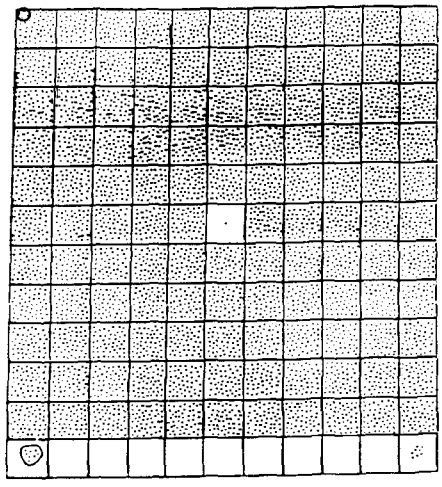


Figure 2

1971. The last US-USSR nuclear arms agreement had been SALT II, signed June 18, 1979, but not ratified by the United States. Most arms control activity was in reverse and is only now turning positive. The US had exceeded the SALT II limits in 1987, for example, and the Reagan Administration had subjected the 1972 ABM Treaty to narrow re-interpretation while multi-billion dollar R and D efforts were launched on the SDI. Both superpowers have been engaged until recently in immense naval build-ups (including the Soviet Union's first fixed-wing aircraft carrier) most of which is not subject to any arms control constraints. Only in recent weeks has the United States abandoned, so far by implication, the Weinberger goal of a 600-ship navy.

This entire environment is now extremely fluid and more promising than at any time since the advent of the nuclear age. The Soviet Union has reversed a considerable measure of its long-time resistance to western demands for proof of compliance. The INF Treaty provides for verification, not simply by remote-sensing satellite techniques (which have improved immensely in quality in recent years), but as well by the hitherto unthinkable method of "intrusive verification." The treaty provides as well not just for de-activating or mothballing (with all of the fears of deception and revival that flow from previous arms-control efforts as long ago as the 1922, 1930,

and 1935 Washington and London naval conference disarmament agreements) but for actual destruction of weapons - again subject to on-site verification. It was the Soviet reversal of attitude toward intrusive verification that prompted Secretary Schultz to say that the US should not be frightened of accepting "yes" for an answer. And thus the INF Treaty provides for a Special Verification Commission. With some fits and starts the Ottawa proposals for Open-Skies inspections seem once again to be possible. And in Washington in June, verification protocols were signed to each of the Threshold Test Ban Treaty and the PNE Treaty. The way now seems clear for United States Senate approval to ratify each. In a few days, the penultimate review conference of the NPT will get underway. It will be the second last chance to strengthen and perpetuate this vital but woefully inadequate treaty.

With common sense, imagination, determination - and a measure of luck - we may yet find our way through the nuclear maze. We will not, however, be beyond our military predicament, nor will we be until there is much broader awareness of the limitations of military responses to non-military circumstances.

The military environment forms an integral part of any discussions about economic development both North and South, about preferred forms of social structure, about issues of conflict resolution, and about policies of resource allocation. It is a category too sophisticated to be governed by uninformed emotion; it is at the same time a category so critical to continued human existence that it cannot be left in default to technologists and think-tank participants -- those who until recently dominated the field.

CONCLUSION

What are the prospects for the human race? Will we be wafted off into glorious tomorrows on the buoyancy of micro-electronics and bioengineering? Or will we sink into a stifling quagmire of contradictory political opinions, or worse? Are there normative ingredients for a preferred future of a kind which permits measurement of progress? I believe that there are, indeed that there must be if we are to proceed towards a functioning, cooperative, and self-sustaining international community. By my calculation, they are five in number:

1) The existence and preservation of a wholesome natural environment;
2) Economically resilient and politically stable democracies;
3) A strong and equitable international trading and monetary system;
4) Accepted and institutionalized mechanisms for the peaceful settlement of disputes;
5) A dedication on the part of all major actors to an enhancement of human dignity, and an understanding on the part of the privileged what that means.

Pipe-dream? Far from it. Cold-blooded, hard-nosed realism. Never before has humanity toyed with circumstances leading to irremedial error: nuclear error, environmental error, economic error. All are of a potential magnitude which makes them qualitatively different from any previous fault-lines. The human race must avoid what sometimes appears to be lemming-like possession of an irreversible momentum towards these irremedial errors.

Any one of these categories could be cataclysmic in itself. Unfortunately, each tends to inter-act with the others to make problem-solving more challenging, to make humility more necessary. Yet humility is not often evident today, not even in the face of staggering technological disasters. Too often the response to Challenger and Chernobyl is to place even more reliance on technology, even less on common sense and humanitarian instincts, to forget that political issues are, at their core, moral issues. How

much of our apparent indifference is a product of our inability to measure, and how much our unwillingness to cry out? The time frames within which some of these slow-moving events are evolving are no longer beyond our comprehension; the possibility of error becomes ever more evident notwithstanding the unforgivable attempts to maintain secrecy. The Soviets delayed for days an acknowledgement of the full extent of the Chernobyl accident, and were roundly criticized worldwide. The British Government chose not to disclose the extent of radiation leakage at Windscale in 1957 because it feared criticism. The United States Government, it is now known, has on several occasions failed to inform potential victims of hazardous circumstances. These always on the ground of national security. These are costs that democratic societies - dependent as they are on transparent, accountable governments - cannot sustain indefinitely. The United States Government last week, for example, conceded that the cost of cleaning up the nuclear weapons factory sites may well be as much as US$200 billion in the next 20 years - the most expensive public works project in the history of that country.

Prior to her death a few years ago, Barbara Ward warned of the momentum of events. She wrote: "The door of the future is opening onto a crisis more sudden, more global, more inescapable, more bewildering than any ever encountered by the human species. And one which will take decisive shape within the life span of children who are already born...." In 1987, Prime Minister Brundtland introduced her Commission's report with the observation that current environmental changes "outstrip our present ability to cope; our financial and political institutions are out of step with the workings of nature." Expressed that way, time assumes a more vital quality, a precious worth.

Closeted as each of us is with an ever-increasing number of people on a planet of finite size, we must realize that the human race cannot survive if arrogant absolutes are to become national policies. The world is a pluralistic community. Concepts of religious or racial or nationalist superiority are as dangerous as they are fallacious.

Virtually all of the world's great military strategists from the 4th century BC Chinese, Sun Tzu, onward have advocated the necessity of limiting the use of armed force, of inflicting the least possible casualties, and of engaging in force only if a state's objectives could not be achieved by other means. Yet the 20th century record is dismal. World War I introduced the concept of unconditional surrender. World War II employed the concept of total war. Today, neither solemnly concluded international treaties nor the most respected of religious teachings stand in the way of military planners who have targeted nuclear warheads at centres of population, who demand ever more lethal weapons of mass and indiscriminate destructive capability. The closely reasoned message of the United States Catholic Bishops has thus challenged the concept of "just war," supported by the church since the rule of Constantine. The Bishops opted in the nuclear age for the more general Christian ethic of "non-violence."

As the new Europe unfolds, all actors must accept that stable defence systems demand two ingredients; two that I have championed on this platform for at least 10 years. The two are deterrence and reassurance. Deterrence is the effective discouragement of resort to war; the knowledge that the commencement of hostilities will result in a military response which would inflict unacceptable punishment. Reassurance - the element never even mentioned by NATO until this spring - is the maintenance of self-confidence within each alliance that one's own and one's adversary's military strength is adequate and intended to defend. If that vital balance between deterrence and reassurance is lost - and we have been close to losing it - the necessary political foundation for NATO will collapse, as will our common security.

How shall I close this all-too-lengthy lecture? With the same words I have used in the past.

The world we live in today is a much more complex place than yesterday's world. It is a world of dysfunction, disequilibrium, and discontinuity. Above all it is a world of inter-

dependence and mutuality of vulnerability in which no nation is able to withdraw or to act with impunity. The age of easy answers and grand designs is well behind us. The need carefully to balance avalanches of data, to assess the impact of a spectrum of alternatives, to consider the interests of a multitude of parties, this is the tedious but essential path through the minefields ahead. That path can be negotiated without question. But to do so we must look forward and abandon once and for all concepts of total victory and total surrender, be they economic, political, or military. We exist today in a world where zero-sum games belong only in the computer arcades. In the real world, in every international field of activity, we all win, or we all will perish. Peter Drucker once wrote:

> No one needs to be told that our age is an age of infinite peril. No one needs to be told that the central question we face with respect to man's future is not <u>what</u> it shall be, but <u>whether</u> it shall be.
> (emphasis added)

He then continues, and emphasizes that the requirements of our age are "tasks of today, and not tasks for the year 2000. But they are the tasks to which we have to address ourselves to deserve tomorrow."

As you begin a challenging year in this remarkable place, preparing yourselves to set foot on the path to tomorrow, I wish you well. You have been given a rare opportunity. I urge you to draw a long bow, to take a long look, to be conscious of time, and to be true to your humane instincts.